Claim 5 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite, it being noted that claim 1 does not provide proper antecedent basis for the term "nitrogen". Applicants have amended claim 5 to describe the dispersant of claim 1 as a nitrogen-containing dispersant. In view of this amendment, the withdrawal of the rejection presented under 35 U.S.C. §112, second paragraph, is respectfully requested.

The invention is directed to an improved lubricating oil for use in heavy duty diesel engines, with which overall performance can be maintained, while simultaneously improving engine corrosion resistance. To accomplish the foregoing, applicants provide a formulation in which the amount of certain components are increased compared to conventional formulations, and, just as importantly, certain components of conventional formulations are used in reduced amounts, or are totally excluded from the composition.

Claims 1 through 14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,558,802 to Dowling ("the Dowling patent"), U.S. Patent No. 5,498,355 to Perozzi et al. ("the Perozzi et al. patent") or U.S. Patent No. 5,451,333 to Waddoups et al. ("the Waddoups et al. patent"). It has been asserted that these patents each teach lubricating compositions containing the components of the presently claimed formulations and render the present claims *prima facie* obvious. Applicants respectfully traverse these grounds for rejection.

As noted above, the invention is directed to a composition found to both meet required performance standards and dramatically improve the corrosion resistance of diesel engines. Applicants have found that these goals can be met simultaneously by providing a lubricant additive containing a dispersant and metal phenate **and** a reduced amount, or no amount of friction modifier, sulfurized phenol and neutral calcium sulfonate. Sulfurized phenols are

conventional and widely used anti-oxidants, and neutral calcium sulfonates are conventionally added to lubricating compositions as detergents and rust inhibitors.

The Dowling patent is directed to a lubricating composition containing only minimal amounts of calcium salts of organic acids. Dowling does not distinguish between neutral calcium sulfonates and overbased materials. The use of metal-containing detergents is disclosed, however, metal phenates are not specified, and dihydrocarbyl dithiophosphate metal salts are described as the preferred detergent additive. Further, in the paragraph bridging columns 12 and 13, the Dowling patent expressly suggests the addition of an anti-oxidant, such as a sulfurized phenate, and at column 13, lines 11 through 28 describes the addition of friction modifiers. Thus, the Dowling et al. patent does not suggest the addition of at least 0.3 mass% of a metal phenate, and actually teaches away from the use of a reduced amount of friction modifier and sulfurized phenol, or the total exclusion
of such additives.

The Perozzi et al. patent is directed to a lubricating composition containing a combination of two, distinct succinic derivative dispersants. This patent expressly suggests the use of a neutral calcium sulfonate (column 2, line 58 to column 3, line 3), sulfurized phenolic anti-oxidants (column 13, lines 38 to 45) and friction modifiers (column 19, lines 5 through 12). Further, the use of a metal phenate, as opposed to a sulfonate, sulfurized phenate and carboxylate, is not required (see column 2, lines 25 through 28). Therefore, the Perozzi et al. patent fails to fairly suggest the formation of a lubricating composition containing a metal phenate, and a reduced amount, or no amount of friction modifier, sulfurized phenol or neutral calcium sulfonate.

The Waddoups et al. patent is directed to haze-resistant lubricating compositions in which an ashless dispersant is added to a lubricating oil under specified conditions, followed by the introduction of other additive components. The Waddoups et al. patent does not specify the use of metal phenates, and the alternative use of sufonates and carboxylates is disclosed (see column 13, lines 46 to 48). The addition of a neutral calcium sulfonate, as a rust inhibitor, is expressly disclosed (see column 13, 35 to 36). Waddoups et al. further suggests the inclusion of sulfurized phenol oxidation inhibitors (see column 18, lines 65 to 66) and friction modifiers (see column 19, lines 3 through 32).

Clearly, none of the Dowling, Perozzi et al. or Waddoups et al. patent would lead one of ordinary skill in the art to formulate a lubricating composition containing a metal phenate, and no amount, or only a minimal amount, of a friction modifier, sulfurized phenol or neutral calcium sulfonate. Nor would these patents provide any suggestion that such a composition will display improved corrosion resistance characteristics. The unexpectedly improved corrosion resistance characteristics of the claimed compositions are demonstrated by the test data of the present specification, as summarized in Tables 1 and 2, on pages 24 and 25 of the specification, respectively. As this data establishes, by formulating a lubricating composition with a metal phenate, but without a neutral calcium sulfonate, sulfurized phenol or friction modifier, the corrosion resistance characteristics of the composition are dramatically improved. The addition of a significant amount of any of these components, or any combination of these components, reduces the corrosion resistance capability of the lubricant. The amounts of the neutral calcium sulfonate, sulfurized phenol and friction modifier components in the comparative tests of Tables

1 and 2 represent the normal amounts of these additives used in conventional lubricant formulations.

The cited patents neither disclose the specific formulations of the present invention nor suggest the improved results that can be achieved with such formulations. These improved results are clearly demonstrated by the test data of the present specification. Therefore, it is believed that any case of *prima facie* obviousness that may have been established has been fully addressed. In view thereof, applicants respectfully request that the rejection of claims 1 through 14 under 35 U.S.C. §103(a) as being unpatentable over the Dowling, Perozzi et al. or Waddoups et al. patent be withdrawn, and that the application be passed to allowance.

Respectfully submitted,

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